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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/507,507	09/13/2004	Akio Ozasa	12480.000061/US	8575

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EXAMINER	
BODAWALA, DIMPLE N	

ART UNIT	PAPER NUMBER
1743	

MAIL DATE	DELIVERY MODE
10/18/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/507,507	OZASA ET AL.	
	Examiner	Art Unit	
	DIMPLE BODAWALA	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 July 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19 and 26-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *9-11,31,33,37,39 and 40* is/are allowed.

6)☒ Claim(s) *1-8,12-19,26-32,34-36,38 and 41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/30/2010*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Reopening of Prosecution after Appeal Brief or Reply Brief

In view of the appeal brief filed on **7/27/2010**, PROSECUTION IS HEREBY REOPENED. New grounds of rejections are set forth below. To avoid abandonment of the application, appellant must exercise one of the following two options: (1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or (2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below at the end of the action.

New Ground of Rejection

Claim Rejections - 35 USC § 102

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1, 4 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by LORCKS et al. (CA 2 143 432).

3. As to claims 1, 4, 6, LORCKS et al. ('432) discloses an invention related produce biodegradable laminated composite material having smooth surface and improved strength, wherein invention comprises step of forming and curing starch to form a layer, wherein the **starch suspension as main composite material** (See page 4 lines 18-20), may be in hybrid form or aqueous starch suspension (See page 3 lines 2-14). It further teaches that the **starch suspension is consisting of potato starch, corn starch and**

water (See page 5 lines 27-28), wherein such statement indicates the steps of *preparing slurry or dough molding material mainly made of starch or a derivative thereof and obtained by adding water therewith*. It further teaches that the composite material consisting of plurality layers of further laminated material and a starch suspension is mainly introduced between the layers of the further laminate material, wherein this composite material is introduced in the die (See page 4 lines 16-20), wherein such statement indicates *the steps of providing coating film distinct from the slurry or dough molding material and placing the molding material and the coating film into a mold having given shaped cavity to obtain a combination of molding material and the coating film*. It further teaches that the laminated composite material comprises **further laminated material as coating material** (See page 2 lines 9-16), wherein the further laminated material is **flat material** and consisting of paperboard, cardboard, textile, synthetic film, or biopolymeric material (See page 3 lines 15-25). It further teaches that the laminated composite material can be easily recycled in addition to being biodegradable and compostable (See page 5 lines 6-14), wherein such statement indicates that the coating material is capable to form from biodegradable plastic material having **hydrophobicity (See US Patent No. 6,294,265, *as an evidence*, which describes that cellulose material, such as biopolymeric material, synthetic material, paper, paperboard, cardboard, etc., are waterproof (hydrophobic) and biodegradable)**, and further teaches that the temperature and pressure-controlled expansion molding apparatus comprising molding dies is heated to 220 C, and further laminated material is placed between the dies, and then starch suspension is poured, wherein the starch suspension expands and contacts the laminated material, thus, the molded article precisely coated with biodegradable material (See pages 5-6). One of ordinary skill in the art it is well known the softening property of biopolymeric material and synthetic material during application of heating, thus, claimed limitation such as, *at the same time soften and pressure-bond the coating film to a surface of a molded article* is read by primary art. It

further teaches that once the molding material is placed in a heated die, evaporate and cause the molding material to expand, wherein the expanded material remains in the mold over a particular dwell time for drying and curing while **moisture escape** (See page 1 lines 11-15), wherein such statement indicates that *the molding dies capable to have exhaust holes in order to discharge the gas out of the mold during the molding step*. It further teaches that the molding apparatus can be rearranged for the production of multitude of surface structure for plate-like laminated composite material or containers (See page 6), wherein the shape of product, such as container, inherently indicates that *the given-shaped cavity of the mold has a deep drawing shape*.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. **Claims 1-8, 12-18, 26-30, 32, 34-36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andersen et al. (US 5,783,126) in view of LORCKS et al. (CA 2 143 432).**

6. As to claims 1, 6, 12, 13, 32, **Andersen et al. ('126)** discloses method for manufacturing articles, wherein method comprises steps of:

- Preparing **a slurry or dough molding material**, which is made by mixtures of starch, water and other material (See col.1 lines 51-60; col.4 lines 64-67; col.7 lines 21-27);
- selected **coating material** can be added to mixture prior to formation of the article (See col.10 lines 9-18; col.13 lines 37-42), wherein selected coating material comprises of biodegradable material (See col.49);
- **heating step** is carried out by a variety of ways such as electrical heating, **steam heating**, infrared light, etc. can be attached or directed at the molds, wherein heating medium such as steam can be piped through the molds to heat them (See col.45 lines 1-20). It further teaches that the mixture of mold material consisting of

starch, derivative and water as solvent, wherein such molding material is placed between pre-heated molds, wherein molds are heated about 100C, thus the heat from the molds causes the mixture to expand within the mold, and excess material and vapor is expelled from between the molds through the small vent holes (See col.18 lines 2-40), wherein such statement inherently indicates the process of **steam expansion**;

- **a plurality of exhaust holes** (12, 14, 16, 18), wherein holes (14) are located on the mold (See figure 14), wherein such holes are capable to exhaust gas between molded article which is capable to have the coating film on the surface and the surface of the mold is capable to molded the article in desired shape (See figure 2, 14; col.18 lines 46-54; col.19 lines 8-12; col.23 lines 23-50).
- inside the mold of **a deep drawing shape** the molding material and the coating film being placed substantially flat for heating and molding the material into a deep drawing shape such as cup (See figures 9-10, and 18-19).

7. **Andersen et al. ('126)** teaches to mold the moldable composition comprises mixture of biodegradable material and coating material through the steam expansion and press molding process as discussed above, but fails to teach or suggest that **coating film distinct from the molding material and placing into the mold with a molding material** as cited in claimed method.

8. **LORCKS et al. ('432)** discloses an invention related produce biodegradable laminated composite material having smooth surface and improved strength, wherein invention comprises step of forming and curing starch to form a layer, wherein the **starch suspension as main composite material** (See page 4 lines 18-20), may be in hybrid form or aqueous starch suspension (See page 3 lines 2-14). It further teaches that the **starch suspension is consisting of potato starch, corn starch and water** (See page 5 lines 27-28), wherein such statement indicates the steps of *preparing slurry or dough molding material mainly made of starch or a derivative thereof and obtained by adding*

water therewith. It further teaches that the composite material consisting of plurality layers of further laminated material and a starch suspension is mainly introduced between the layers of the further laminate material, wherein this composite material is introduced in the die (See page 4 lines 16-20), wherein such statement indicates *the steps of* ***providing coating film distinct from the slurry or dough molding material*** *and placing the molding material and the coating film into a mold having given shaped cavity to obtain a combination of molding material and the coating film.*

9. LORCKS et al. ('432) is in the same art as of **Andersen et al. ('126)** forming composite biodegradable article with higher dense and smooth surface. It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify composite molding material of **Andersen et al. ('126)** by providing coating film distinctly from the slurry or dough molding material, wherein molding material is injected between the coating film and placed between two heated molds, wherein the starch suspension expands and contacts the laminated material, and thus, the molded article precisely coated with expanded starch slurry material (See pages 5-6) as taught by **LORCKS et al. ('432),** wherein such modified article could be used in versatile applications.

10. Furthermore, **Andersen et al. ('126)** teaches to vary the temperature and processing time it is possible to affect the density, porosity and thickness of the surface layer or skin (See col.45 lines 11-15), and to heat the at temperature of about 150-220 C (See col.22 lines 37-54). On the other hand, secondary art, **LORCKS et al. ('432)** further teaches that the temperature and pressure-controlled expansion molding apparatus comprising molding dies is heated to 220 C (See page 5), thus, one of ordinary skill in the art it is known that the controlled temperature molding apparatus is capable *to heat the mold at least 10 C lower than a melting point of molding material.* It is not necessary that the prior art suggests expressly or in so many words the changes or possible

improvements the inventor made but that the knowledge is clearly present. *In re Sernaker, 217 USPQ 1 (Fed. Cir. 1983).*

11. As to claim 2, **Andersen et al. ('126)** further teaches that a space leading to the cavity through the exhaust hole is formed inside the mold, and in the heating and molding step, space is hermetically separated from outside the mold (See fig. 19).

12. As to claims 3-5, 26-28, **Andersen et al.** further teaches that the hermetically separated space has a volume set between third and twice that of a void in the cavity before heating and molding (See fig. 18-19). It further teaches that the gas existing between the coating film and a surface of the mold is discharged out of the mold through the holes (12, 16, 18) in the heating and molding step (See fig.2), Wherein the exhaust hole has a cross section between 0.12 mm^2 and 1.13 mm^2 (See col.23 lines 33-49).

13. As to claims 7-8, 29-30, **Andersen et al.** teaches that the mold made up of a pair of a convex mold and a concave mold is used (See figures 10-11 and 18), the mixture of molding material is placed between the convex mold and concave molds before heating and molding (See figure 9). It further teaches that once the molding material is positioned within the female mold, the molds are mated (See figure 10; col.44 lines 10-16), wherein such statement indicates that the step of moving either one of convex mold and concave mold in a direction where the molds fit together. It further teaches the heating means can be used to vary temperature of the molds along the length of the mold in order to vary the properties of the hardened mixture within the molded article, and also possible to heat the moldable material within the molds (See col.45 lines 4-10), wherein such statement indicates that the invention is capable to provide moldable material before heating and molding step. It further teaches that by varying the temperature and processing time it is possible to affect the property of the coating layer (known as skin layer), wherein such statement indicates that the at least while or until coating film being started to deform, the molds are locked and forming process is continued (See col.45 lines 11-57). Here, claims

8 and 30 are being a substantial duplicate of claims 7 and 29, wherein claims are so close in content that they both cover the same thing, despite a slight difference in wording.

14. As to claims 14-15, 34-35, **Andersen et al. ('126)** teaches that the heating is done so that mold has a temperature 150-220 C (See col.22 lines 37-54).

15. As to claims 16-17, 36, **Andersen et al.** further teaches that the molds are made of metal along with TEFLON coating (See col.44 lines 59-65), which inherently suggests that the surface of the mold is coated with slip agent such as PTFE as fluoropolymer which is in contact with biodegradable molding material during the molding process.

16. As to claims 18, 38, **Andersen et al. ('126)** further teaches that the coating film is a film mainly made of denatured polyester (See section of "coating film" col.49 lines 35 through col. 50 lines 2).

17. **Claims 19 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andersen et al. (U S Patent No. 5,783,126) in view of LORCKS et al. (CA 2 143 432) and further in view of Okazaki et al. (EP 0679509 A2).**

18. **Andersen et al. ('126)** and/or **LORCKS et al. ('432)** disclose all claimed limitations as discussed above, but fail to teach or suggest the coating film is a biaxially stretched film.

19. **Okazaki et al. ('509)** disclose biaxially oriented laminated film as a biaxially stretched film with excellent scratch resistance, and friction property as well as excellent dubbing resistance (See abstract).

20. It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the invention **Andersen et al. ('126) and/or LORCKS et al. ('432)** by providing a biaxially stretched film as coating film because the biaxially stretched film having excellent scratch resistance, dubbing resistance and friction property, wherein utility of the film prevents the article to degrade in high temperature, and, thus, able to maintain high quality image of the molded article as suggested by **Okazaki et al. ('509)**.

Response to Arguments

21. For combination rejection of claims over Andersen et al. (US 5,783,126) in view of Doane (US 6,040,063), wherein Applicant argues that Andersen, Doane or combination thereof fails to teach or suggest "...heating and molding the combination of slurry or dough molding material and coating film in the mold to mold the slurry or dough molding material through steam expansion, and at the same time soften and pressure bond the coating film to a surface of a biodegradable expanded molded article obtained through steam expansion molding..." as cited in claims.

22. Applicant's arguments are fully considered but they are moot in view of new ground of rejection as discussed above.

23. Applicant further argues that **Andersen et al.** does not provide the coating film distinct from the molding material, there is no pressure-bonding of the coating film to a surface of a biodegradable expanded molded article through steam expansion molding, but rather the mold is solely heated through the steam. Applicant argues that **Andersen et al.** only describes heating a mold, a coating material that melts to cover the surface of a mixture while the mixture is being heated if the coating material is added during the expansion molding, therefore, the method of Andersen et al. is to mold a mixture through expansion and at the same time melt a coating material to form a coating film. Applicant argues that **Andersen et al.** does not teach or suggest "*to mold the slurry or dough molding material through steam expansion and at the same time soften and pressure-bond the coating film to a surface of biodegradable expanded molded article*".

24. In response to Applicant's arguments, In response to Applicant's arguments, **Andersen et al.** teaches that the invention is capable to mold the material through steam expansion, wherein disclosure of Andersen et al. clearly teaches that the mixture of mold material consisting of starch, derivative and water as solvent, wherein such molding material is placed between pre-heated molds, wherein molds are heated about 100C, thus the heat from the molds causes the mixture to expand within the mold, and excess

material and vapor is expelled from between the molds through the small vent holes (See col.18 lines 2-40), wherein such statement inherently indicates the process of steam through expansion. It further teaches that such process enable to produce a product having a lower concentration of air voids and high density. **Andersen et al.** teaches that coating material can be applied either in the mixture before the article is formed or the coating can be applied externally after the article is formed (See col.14 lines 4-10), but fails to point out that the coating material is distinct from the molding material and is placed within the mold cavity defined between two molds, wherein such lacking of the primary art would have been modified by providing teaching of secondary art **LORCKS et al. (CA 2 143 432)** as discussed above.

25. Applicant further argues that example 6 of **Doane** only discloses that coating was accomplished by placing the films on one or both sides of the selected substrates, then placing the assembly between metal placed in press and compressing at an elevated temperature and pressure, wherein the substrate are starch and PVOH blend films. Applicant further argues that substrates of **Doane** would have been already molded before the coating was accomplished, and there is no steam expansion occurs by compressing the substrates at an elevated temperature and pressure, therefore, example 6 of **Doane** neither discloses nor teaches nor suggests "*to mold the slurry or dough molding material through steam expansion and at the same time soften and pressure-bond the coating film to a surface of biodegradable expanded molded article*". Applicant further argues that **Doane** neither teaches nor suggests *a coating film distinct from the slurry or dough molding material being placed into a mold along with the slurry or dough molding material.*

26. Applicant's arguments with respect to **Doane** have been fully considered and found persuasive because example 6 of **Doane** teaches that the coating was accomplished by placing the films on one or both sides of the selected substrate, and then placing composite between mold plates, wherein **Doane** does not clearly describe that "selected

substrate" to be slurry or dough molding material, and, therefore, rejection of claims over Doane has been withdrawn.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIMPLE BODAWALA whose telephone number is (571)272-6455. The examiner can normally be reached on Monday - Friday at 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JOSEPH S. DEL SOLE can be reached on (571) 272-1130. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. B./
Examiner, Art Unit 1743

/Joseph S. Del Sole/
Supervisory Patent Examiner, Art Unit 1743